BOTANICAL GAZETTE

MAY, 1892.

Sereno Watson.

JOHN M. COULTER.

(WITH PLATES VI AND VII.[1])

Sereno Watson was born December 1, 1826, at East Windsor Hill, Connecticut. He graduated from Yale College in 1847; taught school for several years in different states; studied medicine at the University of New York; was a practicing physician for two years at Quincy, Illinois; was secretary of the Planters' Insurance Company of Greensboro, Alabama, from 1856 to 1861; became a professional botanist in 1868; was botanist of Clarence King's U. S. Geological Survey during the seasons of 1868 and 1869; became Professor Gray's assistant at Cambridge in 1871; and was made Curator of the Gray Herbarium and Library in 1888, a position which he held at the time of his death, March 9, 1892.[2]

Such are the prominent dates and positions connected with the life of one who, at his death, was the most distinguished American student of systematic botany. His work will speak for itself, but the real flavor of his quiet life is known only to those of us who were fortunate enough to be intimately associated with him. To the chance visitor or casual acquaintance he seemed painfully reticent and unresponsive, but he hesitated at no trouble in serving those who sought his help; and many American botanists will always cherish the memory of his kindly, unrequited assistance. The priceless herbarium, under his care, still had the atmosphere of helpfulness so characteristic of its great founder. To turn from the memories of the friend to the cold recital of the work of the botanist is a necessary but uncongenial task.

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[1]The portrait (plate VI) is from a photograph by Pach, taken in January, 1887. It is selected by a friend as the best likeness of Dr. Watson. The herbarium interior (plate VII) is from a photograph taken about 1880.

[2]I am indebted to "Garden and Forest" (March 16) for the facts with reference to Dr. Watson's earlier life.

Sereno Watson appeared suddenly in the botanical world. So far as we know, he had no puerile work to lament, the common experience of most botanists, but when known as a botanist at all he was in the foremost rank. This stepping at once, full-equipped, among the leaders, without any preliminary service, is one of the distinguishing marks of his botanical career.

His apparently accidental connection as botanist with the U. S. Geological Survey under Clarence King was the occasion of his sudden celebrity as a botanist. Botanical collectors had visited the great west before and have multiplied since, but Watson brought back from the Great Basin region not only a magnificent collection of plants, but also such an ability to study it, that his report, technically known as the "Botany of the 40th parallel" (vol. V of the Clarence King's Reports), has become one of the classics of American botany. The appearance of this work in 1871 was the first announcement that America had another great botanist.

From that time he was the constant associate of Dr. Gray, devoting himself entirely to the study of the North American flora.

In 1876 there appeared the first volume of the Botany of California, a most elaborate presentation of the unique flora of the Pacific coast region. This volume was the joint work of Dr. Watson, Professor Brewer, and Dr. Gray; the first two elaborating the Polypetalae, the Gamopetalae falling to Dr. Gray. The second volume, appearing in 1880, was the sole work of Dr. Watson; and it was in this volume that his presentation of the mosses, although not a professed bryologist, showed the remarkable taxonomic power he possessed. This contact with the mosses led to his being asked, upon the death of Mr. Thomas P. James in 1882, to take editorial charge of Lesquereux and James' "Mosses of North America," then in press. This involved a vast amount of critical and editorial labor, and must have seemed a sad waste of time to a man overwhelmingly busy in other directions.

In 1878 there appeared the first part of his "Bibliographical Index", including the Polypetalae of North America. It is a great loss to American botany that Dr. Watson was not able to prepare the remaining parts, especially those including the Apetalae and Monocotyls. The only part that appeared, however, has been an immensely useful book; and

it must always stand as a monument to the patient, systematic, drudgery-enduring nature of the man. It is far more than a careful collaboration of references and synonymy; for it necessitated the revision of many groups and contains views unrepresented elsewhere. I imagine that no book has been more consulted by students of the North American flora than this one; in fact, in lack of a volume of the Synoptical Flora covering the same ground, this volume of the Bibliographical Index was all that made the study of North American Polypetalae possible in many herbaria. The number who have leaned upon Dr. Watson for synonymy and dates is far greater than their acknowledgement of such laborious but thankless service.

At the death of Dr. Gray, the writer had in hand a revision of Gray's Manual upon entirely new lines. The chief purpose was to enlarge its range and revise its nomenclature, but Dr. Gray had also planned a different style of presentation, and had furnished complete manuscripts of two or three small families as patterns. This work was brought to a sudden close by the death of Dr. Gray and the transfer of his copyrights to Harvard University. As is well known, however, the manual was revised, the work being assigned to Dr. Watson and the writer. It was really an imposition upon the former, for he could not take such responsibility lightly and did far more time-consuming work of revision than the necessities of the case demanded. The result was a manual more closely following the old lines than Dr. Gray had intended, but still fully as useful to the vast majority who use it.

The series of "Contributions to American Botany" which bears Dr. Watson's name represents some of our most important systematic literature. The series reached 18 in number, and extended from May 1873 to July 1891, chiefly in the Proceedings of the American Academy. In this series, his name is associated with the revision of the following orders: Chenopodiaceae and Liliaceae; and with the following genera: Lupinus, Potentilla, Œnothera, Ceanothus, Trifolium, Lathyrus, Megarhiza, Peucedanum, Lychnis, Eriogonum, Chorizanthe, and Rosa.

A large amount of his time was occupied in elaborating the rich Mexican collections of Pringle, and scores of new Mexican genera and species will always speak of his connection with that flora.

After Dr. Gray's death it was a fitting thing to so arrange Dr. Watson's time that he could have abundant opportunity to continue the "Synoptical Flora," and botanists were satisfied that this work would be continued more nearly in the spirit of its great author than in the hands of any other botanist. But now not a published page has been added, and our greatest botanical work bids fair to remain even more incomplete than its forerunner, the Flora of North America. However, much work had been done among the polypetalous orders, and it is to be hoped that that part at least can appear with something like completeness.

As a botanist, Dr. Watson was thorough and painstaking, the charge of hasty conclusions never having been laid at his door. His whole training and disposition compelled him to occupy a conservative position in the midst of the perturbations of sequence and nomenclature. He had to be very sure that right conclusions had been reached before his consent could be given; but his conservative views were never offensive and never appeared in public discussion. His disposition was simply to wait until things became more settled, and in the mean time to work quietly along in his own way. It has always seemed to the writer that Dr. Watson was remarkably gifted for doing safe systematic work. Lacking the grasp, the originality, the inspiration of our greatest botanist, he yet had that clear analytic vision and unflinching patience that lead to the best results. As I have heard him say: "I never can remember anything, but I can work it out"; and this seems to express his peculiar quality. It must be said in justice, however, that Dr. Watson's position in matters of ordinal arrangement was not so conservative as his writings would seem to indicate. His views on this point were clear and original. Recognizing the temporary nature of our present fabric of classification, he has frequently discussed with the writer the changes which were imminent, and only withheld a concrete public expression of his views because he did not deem his knowledge or any one's knowledge of affinities sufficient.

Systematic botany has lost another one of its great exponents, another one of that generation which is fast passing away. What the new generation is to do for the science is hard to predict, but it is evident that as the old leaders disappear we are to become more of a democracy. Sereno Watson's

place in the study of botany of this country can not be filled, for the conditions which made him have disappeared; but to many of us this loss will appear secondary, because we especially cherish the memory of the kind and helpful friend.

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On the archegonium and apical growth of the stem in Tsuga Canadensis and Pinus sylvestris.

D. M. MOTTIER.

(WITH PLATE VIII.)

To determine the true relationship existing between the different groups of the plant kingdom is yet a problem of great interest to botanists. The genealogical tree is still largely hypothetical and must necessarily remain so for some time to come. Now and then modern research fills up a gap or throws some light on the true line of development.

The gymnosperms, holding as they do a position between the pteridophytes and angiosperms, are perhaps as interesting as perplexing. It is, however, chiefly in the study of the reproduction, the development of the embryo and the meristems of stem and root that we are to look for the true affinities of the neighboring groups.

Several representative types of the gymnosperms have been carefully studied by Hofmeister and, later, by Strasburger and others. Since more accurate methods have come into use some of the work done by these botanists has been repeated, especially in cases concerning which there was doubt or difference of opinion.

Having had material in abundance, I recently made a careful study of the development of the archegonium in Tsuga Canadensis and Pinus sylvestris and found that in a few details my results do not quite agree with the account of Strasburger.[1] This investigator states that he can not affirm Hofmeister's statement that the neck of the archegonium of Tsuga Canadensis consists of two cells, one lying above the other, but that it remains one-celled, and only in rare cases did he find two. In a large number of specimens examined I found

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[1] Die Befruchtung bei den Coniferen, p. 6. Jena, 1869.